

FCC 47 CFR PART 18

TEST REPORT

Test Report No. : OT-253-RED-027
Reception No. : 2502000584
Applicant : LG Electronics USA, Inc.
Address : 111 Sylvan Avenue, North Building, Englewood Cliffs, New Jersey, 07632, United States
Manufacturer : LG Electronics USA, Inc.
Address : 170, Seongsanpaechong-ro, Seongsan-gu, Changwon-si, Gyeongsangnam-do 51533 Korea
Type of Equipment : HOUSEHOLD ELECTRIC OVEN
Model Name : WCEZ6428S
Multiple Model Name : PT9900SWSS, PT9900SW1SS
FCC ID. : BEJD1724NAGT
Serial number : N/A
Total page of Report : 35 pages (including this page)
Date of Incoming : February 19, 2025
Test Period : February 27, 2025 ~ March 07, 2025
Date of Issuing : March 11, 2025

SUMMARY

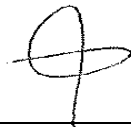
The equipment complies with the requirement of **FCC CFR 47 PART 18**.

This test report contains only the results of a single test of the sample supplied for the examination.

It is not a general valid assessment of the features of the respective products of the mass-production.

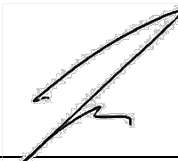
This report is not correlated with the "KS Q ISO/IEC 17025 and KOLAS accreditation" of Korean Laboratory Accreditation Scheme.

Reviewed by:



Sun-Teak, Oh / Senior Project Engineer
 EMC Testing Div.
 ONETECH Corp.

Approved by:



Seung-Hyun, Park / Chief Engineer
 EMC Testing Div.
 ONETECH Corp.

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Revision History

Rev. No.	Issued Report No.	Issued Date	Revisions	Section Affected
0	OT-247-RED-087	July 25, 2024	Initial Issue	All
1	OT-253-RED-027	March 11, 2025	Changed the LCD.	All

* Please contact us (e-mail: info@onetech.co.kr) for verification of this test report.

1. VERIFICATION OF COMPLIANCE

APPLICANT	LG Electronics USA, Inc. 111 Sylvan Avenue, North Building, Englewood Cliffs, New Jersey, 07632, United States
MANUFACTURER	LG Electronics USA, Inc. 170, Seongsanpaechong-ro, Seongsan-gu, Changwon-si, Gyeongsangnam-do 51533 Korea
FACTORY	LG Electronics USA, Inc. 170, Seongsanpaechong-ro, Seongsan-gu, Changwon-si, Gyeongsangnam-do 51533 Korea LG Electronics Tianjin Appliances Co., Ltd (063637) No.9 Jin Wei Road, Beichen District 300402 Tianjin PEOPLE'S REPUBLIC OF CHINA LG Electronics Reynosa S.A. de C.V. Avenida Industrias 180, Fraccionamiento Industrial PIMSA Ote. 66603 Apodaca, Nuevo Leon, MEXICO

E.U.T. DESCRIPTION	HOUSEHOLD ELECTRIC OVEN
MEASUREMENT PROCEDURES	MP-5: 1986
TYPE OF EQUIPMENT TESTED	Pre-Production
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	Certification
STANDARDS	FCC Part 18, Section 18.311
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	None
FINAL TEST WAS CONDUCTED ON	10 m semi anechoic chamber

ONETECH Corp. tested the above equipment in accordance with the requirements set forth in the above standard. The test results show that equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

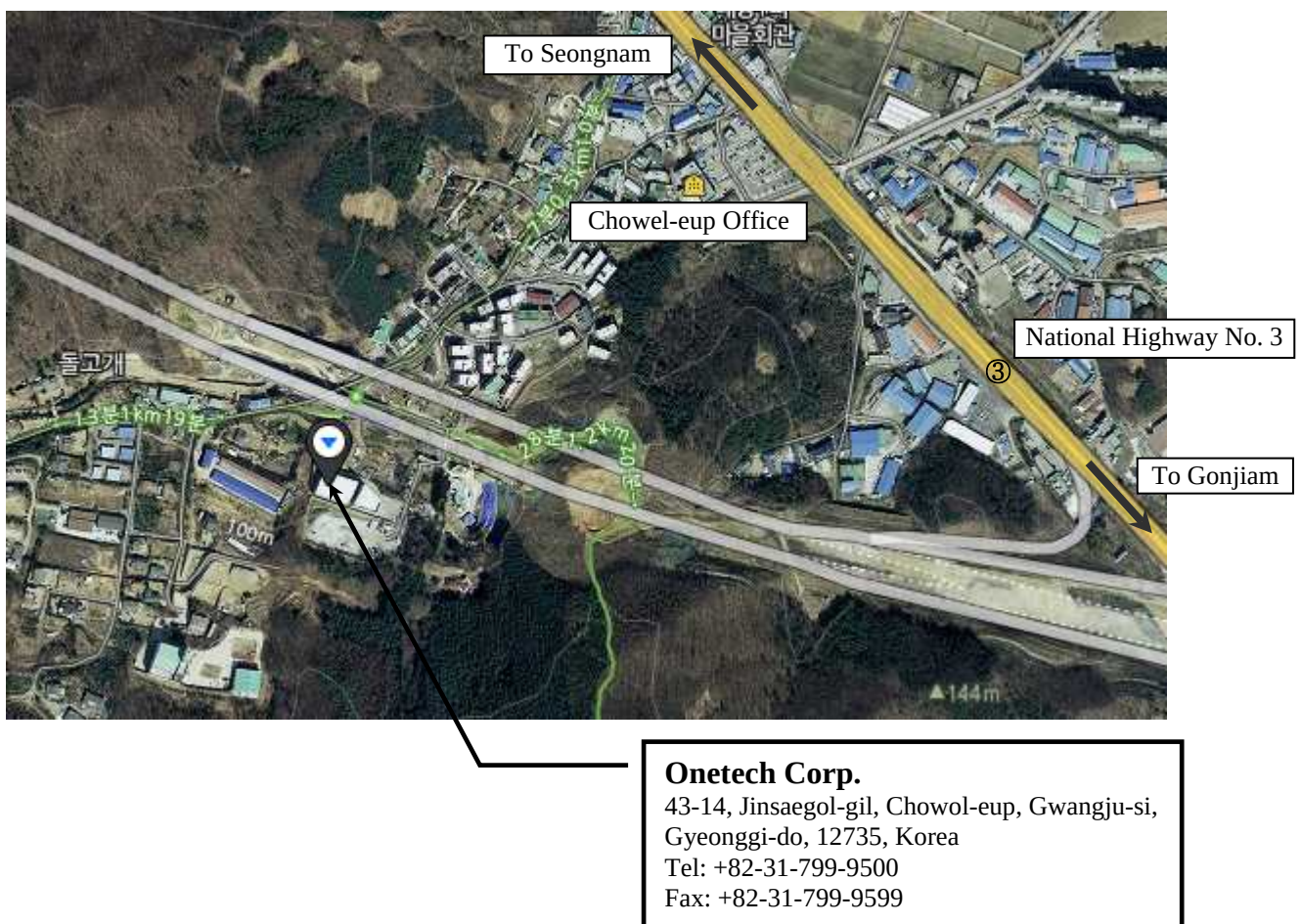
2. TEST FACILITY

The Onetech Corp. has been designated to perform equipment testing in compliance with ISO/IEC 17025 by Radio Research Agency as accreditation body. The Onetech Corp. is accredited for measuring devices subject to Declaration of Conformity (DOC) under Parts 15 & 18 as a Conformity Assessment Body (CAB) with designation number KR0013.

These measurement tests were conducted at Onetech Corp.

The 10 m semi anechoic chamber and conducted measurement facilities are located at

- 1) 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea.
- 2) 12-5, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea.



3. PRODUCT INFORMATION

3.1 Description of EUT

The LG Electronics USA, Inc., Model WCEZ6428S (referred to as the EUT in this report) is a HOUSEHOLD ELECTRIC OVEN.

Product specification described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	Metal & Plastic
LIST OF EACH OSC. or CRY. FREQ. (FREQ. ≥ 1 MHz)	Frequency: 2 400 ~ 2 500 MHz Output Watts: 950 W
NUMBER OF PCB LAYERS	-
P. C. Board name	-
ELECTRICAL RATING	120/240 V, 7.8 kW Or 120/208 V, 6.2 kW/ 60 Hz * microwave and oven
EXTERNAL CONNECTOR	AC IN

3.2 Model Differences

- . WCEZ6428S: Basic model
- . PT9900SWSS, PT9900SW1SS is buyer model name of WCEZ6428S.

3.3 Support Equipment

The model numbers for all the equipment that were used in the tested system is:

Description	Model	Manufacturer	Connected to
HOUSEHOLD ELECTRIC OVEN (EUT)	WCEZ6428S	LG Electronics USA, Inc.	-
Beaker	N/A	N/A	-

3.4 System Configuration

DEVICE TYPE	MODEL/PART NUMBER	MANUFACTURER
HOUSEHOLD ELECTRIC OVEN	WCEZ6428S	LG Electronics USA, Inc.

3.5 System Configuration

Ports Name	Shielded	Ferrite Bead	Metal Shell	Length (m)	Connected to
AC IN	N	N	N	1.5	LISN

3.6 Equipment Modifications

-. None

3.7 Information of Measurement Software

	Chamber name	Software name	Software version
☐ -	Conducted Emission #1	Noise Terminal Voltage Measurement	2.00.0180
☐ -	Conducted Emission #2	EMC32	10.60.10
☒ -	Conducted Emission #3	Noise Terminal Voltage Measurement	2.00.0178
☐ -	Radiated Emission 10 m SAC 1	Radiated Emission Measurement	2.00.0201
☒ -	Radiated Emission 10 m SAC 2*	Radiated Emission Measurement	2.00.0202
☐ -	Radiated Emission 3 m SAC	Radiated Emission Measurement	2.00.0202

*) Measurement distance: 3 m

4. DESCRIPTION OF TESTS

4.1 Test Methodology

Both conducted and radiated testing was performed according to the procedures in MP-5: 1986.

Radiated testing was performed at a distance of 10 m from EUT to the antenna.

4.2 Test Condition

The test conditions of the noted test mode(s) in this test report are;

-. Test Voltage / Frequency:

1) AC 208/240 V / 60 Hz

Test Mode		Operating States
1	Microwave mode	After AC power was applied to the EUT, the test was performed by observing the microwave mode operation status through the EUT. Load for power output measurement: 1000 milliliters of water in the beaker located in the center of the oven. Load for all other measurements: 700 milliliters of water, with the beaker located in the center of the oven.

4.3 Conducted Emission

The EUT was placed on non-conductive support 0.1 m above a reference ground plane (RGP) and were put into operation according to the specified operating mode.

The power of EUT is fed through a $50\ \Omega / 50\ \mu\text{H} + 5\ \Omega$ LISN and all support equipment is powered from another LISN. Powers to the LISN are filtered by high-current high insertion loss power line filter.

Sufficient time for EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition.

The RF output of the LISN was connected to the EMI test receiver.

Exploratory measurements were conducted to identify the highest emission by operating the EUT in a range of typical modes of operation, cable positions, system configuration and arrangement.

Based on exploratory measurements, the final measurements were conducted at the worst test conditions.

Exploratory measurements were scanned using Peak mode of EMI Test receiver from 9 kHz to 30 MHz with 20 ms sweep time. The final measurements were measured with Quasi-Peak and CISPR Average mode.

4.4 Radiated Emission

Exploratory Radiated measurements were conducted at the 10 m semi anechoic chamber in order to identify the highest emission by operating the EUT in a range of typical modes of operation, cable positions, system configuration and arrangement.

Based on exploratory measurements, the final measurements were conducted at the worst test conditions.

Final measurements were made at 10 m semi anechoic chamber that complies with CISPR 16/MP-5.

Exploratory measurements were scanned using Peak mode of EMI Test receiver and final measurements were measured with Quasi-Peak mode .

The system was rotated 360°, and the antenna was varied in height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for both horizontal and vertical polarization of the receiving antenna.

5. FINAL RESULT OF MEASUREMENT

Exploratory measurement was done in normal operation mode. And the final measurement was selected for the maximized emission level.

5.1 Conducted Emission Test

5.1.1 Operating Environment

Temperature : 20.1 °C
Relative humidity : 40.1 % R.H.

5.1.2 Test Setup

The EUT and all local support equipment were placed on non-conductive support 0.1 m above a reference ground plane . The power of EUT was fed through a 50 Ω / 50 μ H + 5 Ω LISN. The ground plane was electrically bonded to the reference ground system and all power lines were filtered from ambient.

5.1.3 Measurement uncertainty

Conducted emission, quasi-peak detection : 1.6 dB
Conducted emission, CISPR-average detection : 1.6 dB

Measurement uncertainty is calculated in accordance with CISPR 16-4-2. The measurement uncertainty is given with a confidence of 95 % with the coverage factor, $k = 2$.

5.1.4 Limit

(A) All other part 18 consumer devices:		
Frequency of Emission (MHz)	Conducted Limit (dB μ V)	
	Quasi-peak	CISPR Average
0.15-0.5	66 to 56*	56 to 46*
0.5 ~ 5	56	46
5 ~ 30	60	50
Note		
(1) The tighter limit applies at the band edges.		
(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.		

5.1.5 Test Equipment used

Model Number	Manufacturer	Description	Serial Number	Last Cal. (Interval)
■ - ESCI	Rohde & Schwarz	Test Receiver	101420	Mar. 05, 2024 (1Y)
■ - LT32C/10	AFJ Instruments	LISN	32032039322	Mar. 05, 2024 (1Y)
■ - 3825/2	EMCO	LISN	9109-1867	Mar. 05, 2024 (1Y)
■ - SH-9500M	EZ DIGITAL	Digital Clamp Meter	A863019	Mar. 11, 2024 (1Y)

All test equipment used is calibrated on a regular basis.

5.1.6 Test Data

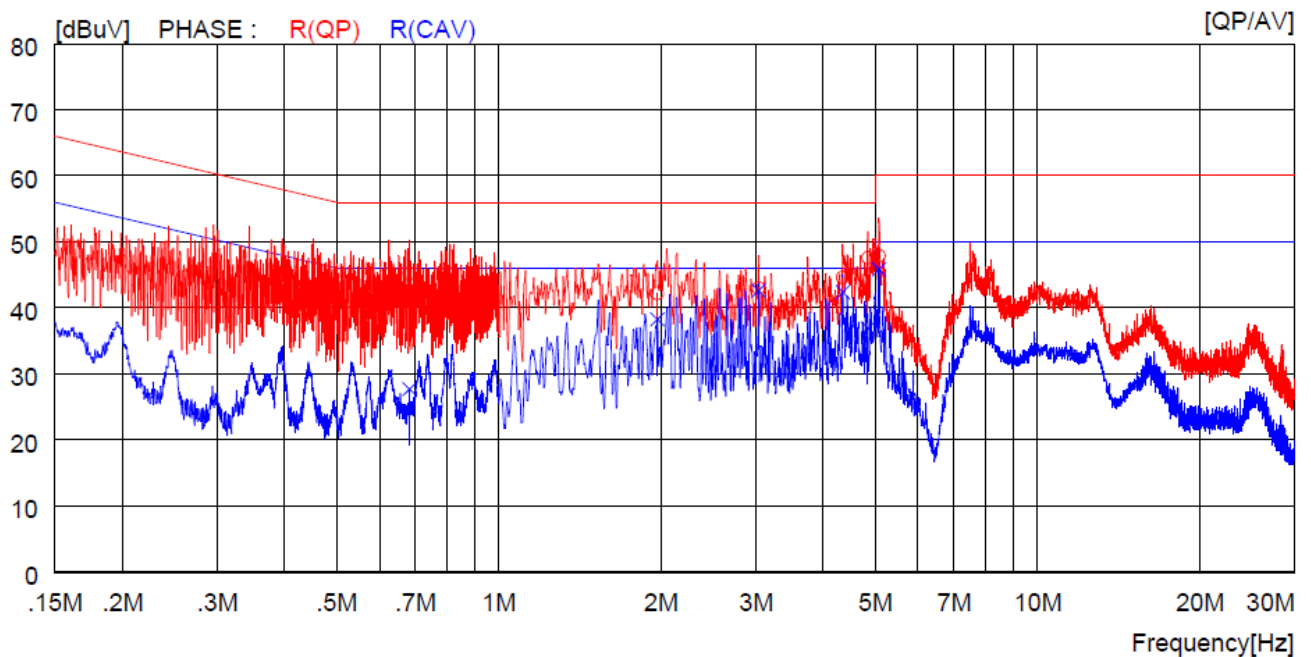
5.1.6.1 Operating Condition: AC 208 V / 60 Hz

-. Test Result : Pass



Tested by: Young-Jae, Kim / Project Engineer

Microwave mode			
Frequency range	: 150 kHz ~ 30 MHz	Test Date	: February 27, 2025
Resolution bandwidth	: 9 kHz	Tested Line	: R

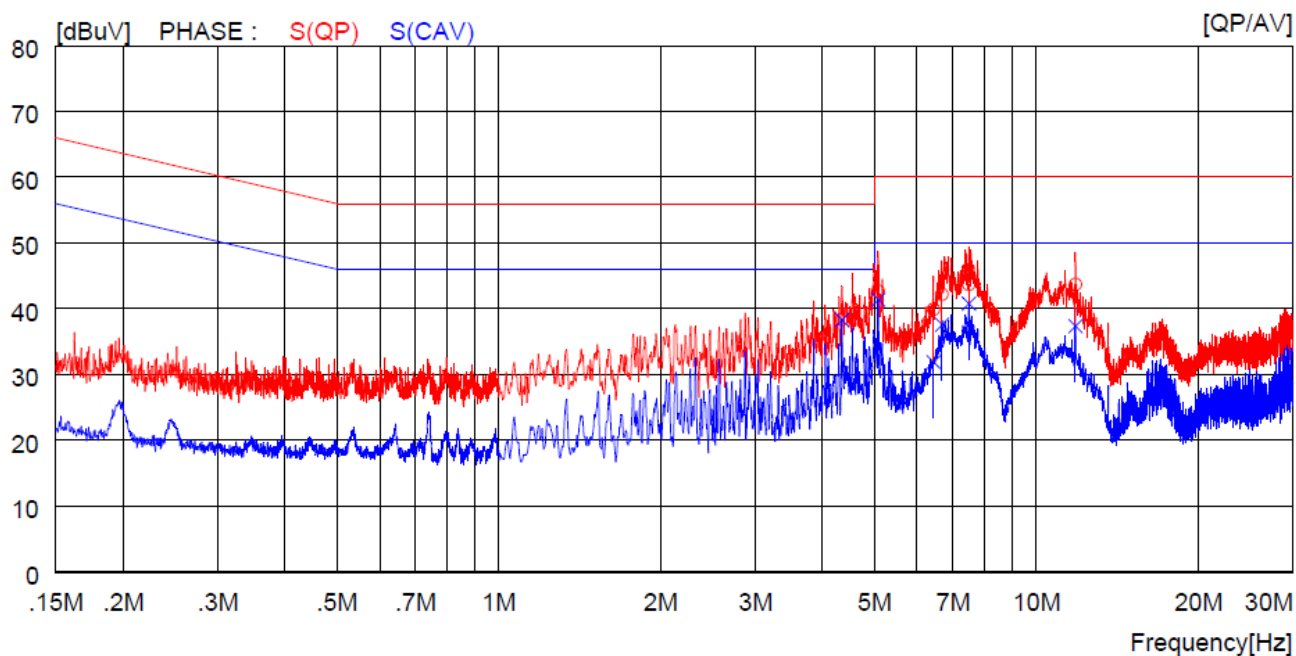


NO	FREQ [MHz]	READING		C. FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.68200	33.4	----	11.8	45.2	----	56.0	----	10.8	----	R (QP)
2	1.96800	30.4	----	11.8	42.2	----	56.0	----	13.8	----	R (QP)
3	3.03200	31.2	----	11.8	43.0	----	56.0	----	13.0	----	R (QP)
4	4.34800	32.9	----	11.7	44.6	----	56.0	----	11.4	----	R (QP)
5	4.84400	35.9	----	11.7	47.6	----	56.0	----	8.4	----	R (QP)
6	5.08000	36.2	----	11.7	47.9	----	60.0	----	12.1	----	R (QP)
7	0.68200	----	15.9	11.8	----	27.7	----	46.0	----	18.3	R (CAV)
8	1.96800	----	26.5	11.8	----	38.3	----	46.0	----	7.7	R (CAV)
9	3.03200	----	30.8	11.8	----	42.6	----	46.0	----	3.4	R (CAV)
10	4.34800	----	30.7	11.7	----	42.4	----	46.0	----	3.6	R (CAV)
11	4.84400	----	25.2	11.7	----	36.9	----	46.0	----	9.1	R (CAV)
12	5.08000	----	34.1	11.7	----	45.8	----	50.0	----	4.2	R (CAV)

Remark: Margin (dB) = Limit – Level (Result)

The result level in above table is included the transducer factor that means insertion loss (AMN), cable loss and attenuator.

Microwave mode			
Frequency range	: 150 kHz ~ 30 MHz	Test Date	: February 27, 2025
Resolution bandwidth	: 9 kHz	Tested Line	: S

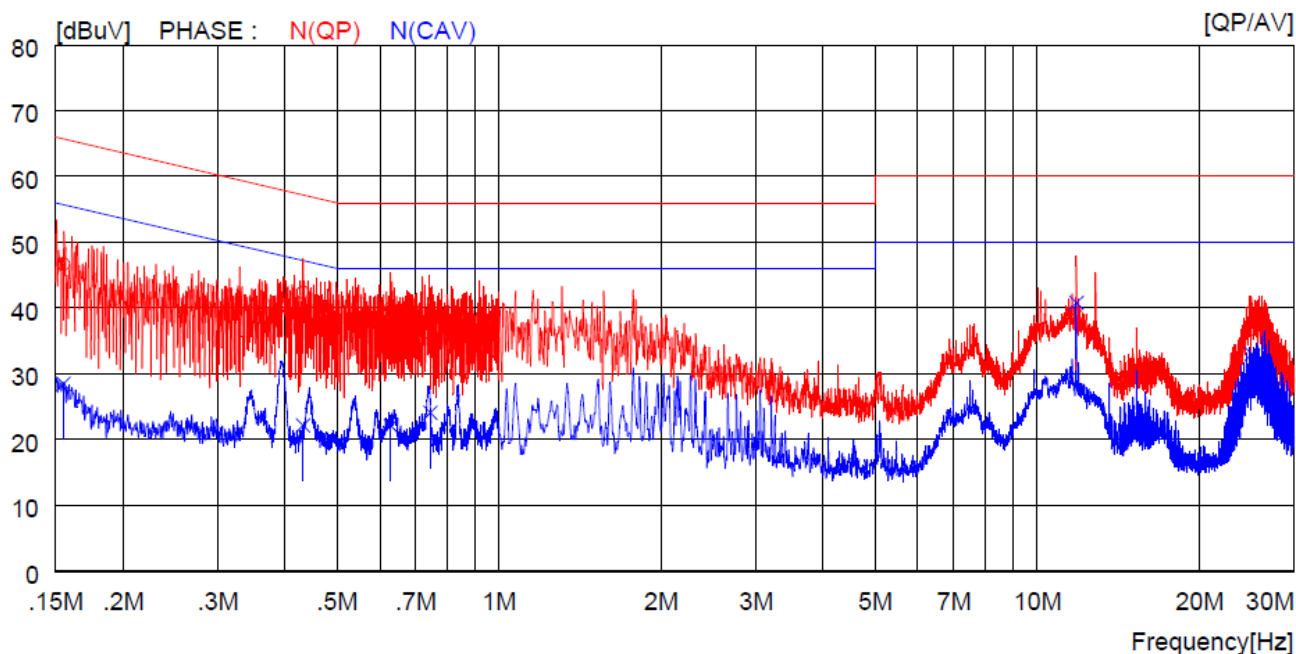


NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	4.34800	26.7	----	11.7	38.4	----	56.0	----	17.6	----	S (QP)
2	5.07500	31.0	----	11.7	42.7	----	60.0	----	17.3	----	S (QP)
3	6.43500	28.1	----	11.8	39.9	----	60.0	----	20.1	----	S (QP)
4	6.67500	30.4	----	11.8	42.2	----	60.0	----	17.8	----	S (QP)
5	7.48500	31.8	----	11.9	43.7	----	60.0	----	16.3	----	S (QP)
6	11.83000	31.6	----	12.1	43.7	----	60.0	----	16.3	----	S (QP)
7	4.34800	----	26.6	11.7	----	38.3	----	46.0	----	7.7	S (CAV)
8	5.07500	----	29.7	11.7	----	41.4	----	50.0	----	8.6	S (CAV)
9	6.43500	----	20.1	11.8	----	31.9	----	50.0	----	18.1	S (CAV)
10	6.67500	----	25.8	11.8	----	37.6	----	50.0	----	12.4	S (CAV)
11	7.48500	----	28.9	11.9	----	40.8	----	50.0	----	9.2	S (CAV)
12	11.83000	----	25.3	12.1	----	37.4	----	50.0	----	12.6	S (CAV)

Remark: Margin (dB) = Limit – Level (Result)

The result level in above table is included the transducer factor that means insertion loss (AMN), cable loss and attenuator.

Microwave mode			
Frequency range	: 150 kHz ~ 30 MHz	Test Date	: February 27, 2025
Resolution bandwidth	: 9 kHz	Tested Line	: N



NO	FREQ [MHz]	READING		C. FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.15500	35.2	----	11.5	46.7	----	65.7	----	19.0	----	N (QP)
2	0.43200	30.7	----	11.7	42.4	----	57.2	----	14.8	----	N (QP)
3	0.62900	28.1	----	11.8	39.9	----	56.0	----	16.1	----	N (QP)
4	0.74500	24.3	----	11.8	36.1	----	56.0	----	19.9	----	N (QP)
5	11.82000	26.9	----	12.1	39.0	----	60.0	----	21.0	----	N (QP)
6	25.03000	24.8	----	12.0	36.8	----	60.0	----	23.2	----	N (QP)
7	0.15500	----	17.0	11.5	----	28.5	----	55.7	----	27.2	N (CAV)
8	0.43200	----	10.5	11.7	----	22.2	----	47.2	----	25.0	N (CAV)
9	0.62900	----	10.3	11.8	----	22.1	----	46.0	----	23.9	N (CAV)
10	0.74500	----	12.3	11.8	----	24.1	----	46.0	----	21.9	N (CAV)
11	11.82000	----	28.7	12.1	----	40.8	----	50.0	----	9.2	N (CAV)
12	25.03000	----	21.0	12.0	----	33.0	----	50.0	----	17.0	N (CAV)

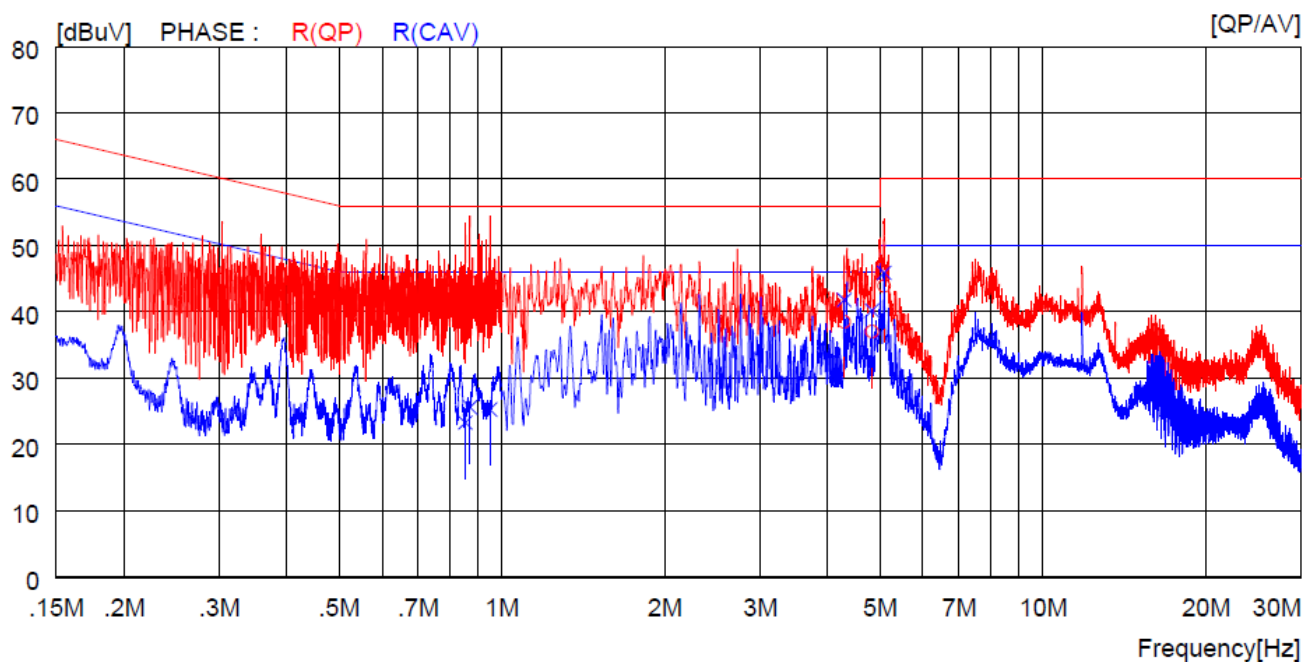
Remark: Margin (dB) = Limit – Level (Result)

The result level in above table is included the transducer factor that means insertion loss (AMN), cable loss and attenuator.

5.1.6.2 Operating Condition: AC 240 V / 60 Hz

-. Test Result : Pass

Microwave mode			
Frequency range	: 150 kHz ~ 30 MHz	Test Date	: February 27, 2025
Resolution bandwidth	: 9 kHz	Tested Line	: R

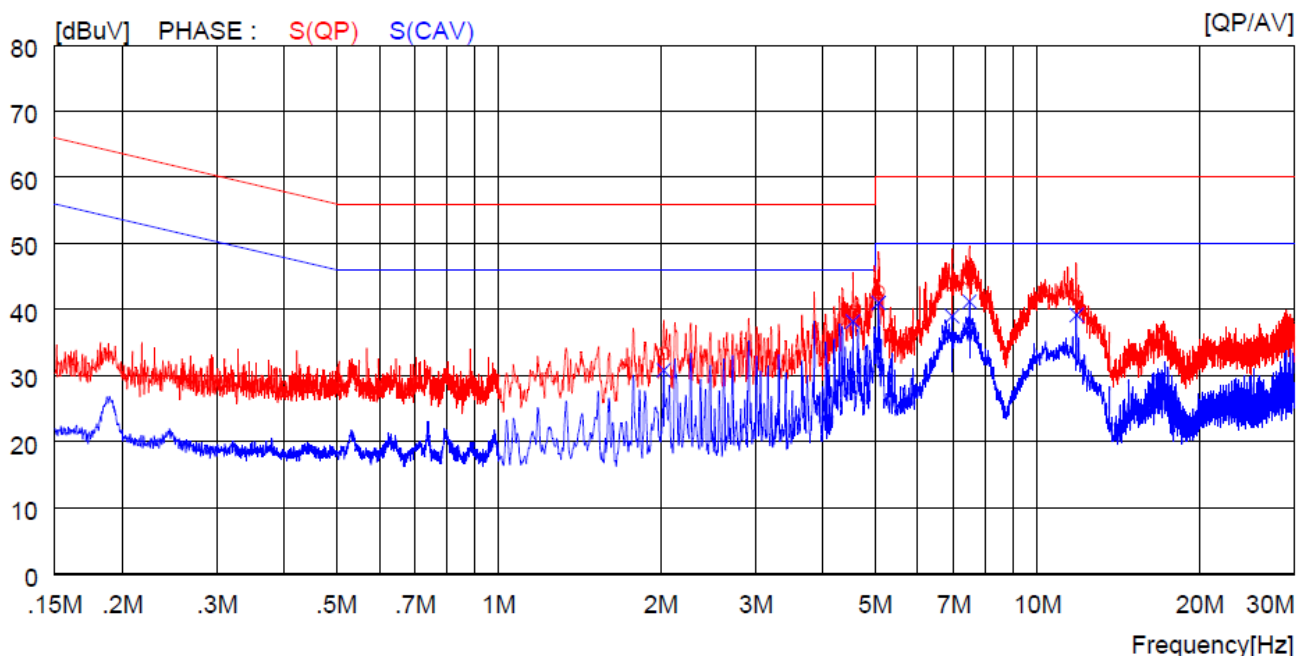


NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.85500	31.4	----	11.9	43.3	----	56.0	----	12.7	----	R(QP)
2	0.87200	32.6	----	11.9	44.5	----	56.0	----	11.5	----	R(QP)
3	0.95000	32.6	----	11.9	44.5	----	56.0	----	11.5	----	R(QP)
4	4.29200	26.8	----	11.7	38.5	----	56.0	----	17.5	----	R(QP)
5	4.83200	25.3	----	11.7	37.0	----	56.0	----	19.0	----	R(QP)
6	5.08500	32.2	----	11.7	43.9	----	60.0	----	16.1	----	R(QP)
7	0.85500	----	11.4	11.9	----	23.3	----	46.0	----	22.7	R(CAV)
8	0.87200	----	13.7	11.9	----	25.6	----	46.0	----	20.4	R(CAV)
9	0.95000	----	13.4	11.9	----	25.3	----	46.0	----	20.7	R(CAV)
10	4.29200	----	30.1	11.7	----	41.8	----	46.0	----	4.2	R(CAV)
11	4.83200	----	28.5	11.7	----	40.2	----	46.0	----	5.8	R(CAV)
12	5.08500	----	34.2	11.7	----	45.9	----	50.0	----	4.1	R(CAV)

Remark: Margin (dB) = Limit – Level (Result)

The result level in above table is included the transducer factor that means insertion loss (AMN), cable loss and attenuator.

Microwave mode			
Frequency range	: 150 kHz ~ 30 MHz	Test Date	: February 27, 2025
Resolution bandwidth	: 9 kHz	Tested Line	: S

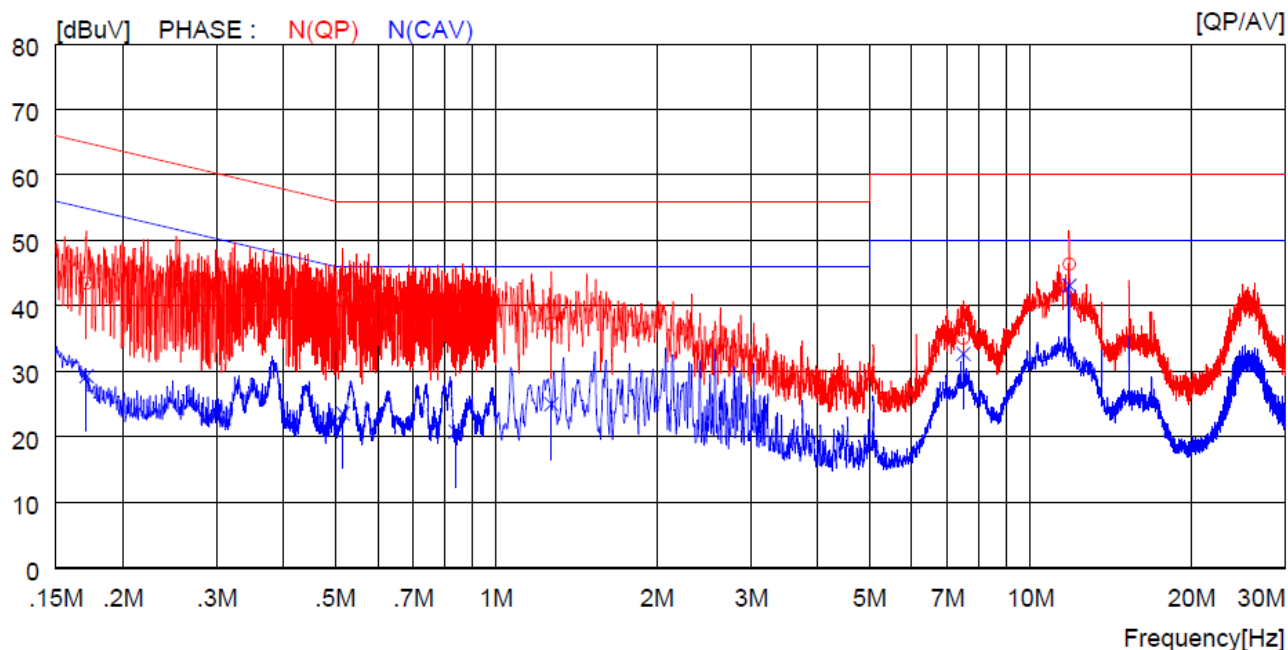


NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	2.02400	21.6	----	11.8	33.4	----	56.0	----	22.6	----	S (QP)
2	4.54400	28.0	----	11.7	39.7	----	56.0	----	16.3	----	S (QP)
3	5.07000	31.0	----	11.7	42.7	----	60.0	----	17.3	----	S (QP)
4	6.94500	32.3	----	11.8	44.1	----	60.0	----	15.9	----	S (QP)
5	7.48000	32.7	----	11.9	44.6	----	60.0	----	15.4	----	S (QP)
6	11.82000	29.9	----	12.1	42.0	----	60.0	----	18.0	----	S (QP)
7	2.02400	----	19.0	11.8	----	30.8	----	46.0	----	15.2	S (CAV)
8	4.54400	----	26.5	11.7	----	38.2	----	46.0	----	7.8	S (CAV)
9	5.07000	----	29.3	11.7	----	41.0	----	50.0	----	9.0	S (CAV)
10	6.94500	----	27.2	11.8	----	39.0	----	50.0	----	11.0	S (CAV)
11	7.48000	----	29.3	11.9	----	41.2	----	50.0	----	8.8	S (CAV)
12	11.82000	----	27.1	12.1	----	39.2	----	50.0	----	10.8	S (CAV)

Remark: Margin (dB) = Limit – Level (Result)

The result level in above table is included the transducer factor that means insertion loss (AMN), cable loss and attenuator.

Microwave mode			
Frequency range	: 150 kHz ~ 30 MHz	Test Date	: February 27, 2025
Resolution bandwidth	: 9 kHz	Tested Line	: N



NO	FREQ [MHz]	READING		C. FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.17100	32.0	----	11.5	43.5	----	64.9	----	21.4	----	N (QP)
2	0.51600	29.0	----	11.8	40.8	----	56.0	----	15.2	----	N (QP)
3	0.83900	25.9	----	11.9	37.8	----	56.0	----	18.2	----	N (QP)
4	1.26800	25.4	----	11.9	37.3	----	56.0	----	18.7	----	N (QP)
5	7.48500	23.2	----	11.9	35.1	----	60.0	----	24.9	----	N (QP)
6	11.82000	34.3	----	12.1	46.4	----	60.0	----	13.6	----	N (QP)
7	0.17100	----	17.8	11.5	----	29.3	----	54.9	----	25.6	N (CAV)
8	0.51600	----	11.8	11.8	----	23.6	----	46.0	----	22.4	N (CAV)
9	0.83900	----	8.9	11.9	----	20.8	----	46.0	----	25.2	N (CAV)
10	1.26800	----	13.1	11.9	----	25.0	----	46.0	----	21.0	N (CAV)
11	7.48500	----	20.8	11.9	----	32.7	----	50.0	----	17.3	N (CAV)
12	11.82000	----	31.0	12.1	----	43.1	----	50.0	----	6.9	N (CAV)

Remark: Margin (dB) = Limit – Level (Result)

The result level in above table is included the transducer factor that means insertion loss (AMN), cable loss and attenuator.

5.2 Radiated Emission Test

5.2.1 Operating Environment

Temperature : 24.1 °C
Relative humidity : 46.3 % R.H.

5.2.2 Test Setup

The radiated emissions measurements were on the 10 m semi anechoic chamber. The EUT and all local support equipment were placed on non-conductive support 0.1 m above a reference ground plane.

The frequency spectrum of 9 kHz to 30 MHz, 30 MHz to 1 000 MHz, 1 GHz to 25 GHz was scanned and the maximum emission level of each frequency was recorded. The maximum emission level was determined by rotating the system 360° and changing the height of the antenna between 1.0m and 4.0m, and the height of the loop antenna was set to 2m. This procedure was performed for both horizontal and vertical polarization of the receiving antenna.

5.2.3 Measurement uncertainty

Radiated emission electric field intensity, 9 kHz ~ 30 MHz : 4.4 dB

Radiated emission electric field intensity, 30 MHz ~ 1 000 MHz : 4.4 dB

Radiated emission electric field intensity, 1 000 MHz ~ 6 000 MHz : 5.5 dB

Radiated emission electric field intensity, 6 000 MHz ~ 25 000 MHz : 5.7 dB

Measurement uncertainty is calculated in accordance with CISPR 16-4-2. The measurement uncertainty is given with a confidence of 95 % with the coverage factor, $k = 2$.

5.2.4 Limit

Equipment	Operating frequency	RF Power generated by equipment (watts)	Field strength limit (uV/m)	Distance (meters)
Any type unless otherwise specified (miscellaneous)	Any ISM frequency	Below 500 500 or more	25 25 × SQRT(power/500)	300 300 ¹⁾
	Any non-ISM frequency	Below 500 500 or more	15 15 × SQRT(power/500)	300 300 ¹⁾
1) Field strength may not exceed 10 μV/m at 1600 meters. Consumer equipment operating below 1000 MHz is not permitted the increase in field strength otherwise permitted here for power over 500 watts.				

Note 1: Limit $3m(dB\mu V/m) = 20\log(25 \times \text{SQRT}(\text{power}/500))(dB\mu V/m) + 40\log(300m/3m)$ (Below 30 MHz)

$$= 29.5(dB\mu V/m) + 80.0(dB\mu V/m) = 109.5(dB\mu V/m)$$

Note 2: Limit $3m(dB\mu V/m) = 20\log(25 \times \text{SQRT}(\text{power}/500))(dB\mu V/m) + 20\log(300m/3m)$ (Above 30 MHz)

$$= 29.5(dB\mu V/m) + 40.0(dB\mu V/m) = 69.5(dB\mu V/m)$$

ISM frequency	Tolerance
6.78 MHz	± 15.0 kHz
13.56 MHz	± 7.0 kHz
27.12 MHz	± 163.0 kHz
40.68 MHz	± 20.0 kHz
915 MHz	± 13.0 MHz
2450 MHz	± 50.0 MHz
5800 MHz	± 75.0 MHz
24.125 GHz	± 125.0 MHz
61.25 GHz	± 250.0 MHz
122.50 GHz	± 500.0 MHz
245.00 GHz	± 1.0 GHz

5.2.5 Test Equipment used

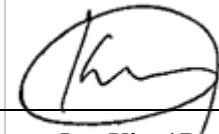
Model Number	Manufacturer	Description	Serial Number	Last Cal. (Interval)
■ - ESW 44	Rohde & Schwarz	EMI Test Receiver	101851	Mar. 05, 2025 (1Y)
■ - VULB9163	Schwarzbeck	Trilog Broadband Antenna	9163-225	Aug. 19, 2024 (2Y)
■ - 8447D	Hewlett Packard	Amplifier	2944A07777	Mar. 05, 2025 (1Y)
■ - CO3000	Innco Systems GmbH	Controller	CO3000/1015	N/A
■ - DT5000	Innco Systems GmbH	Turn Table	N/A	N/A
■ - MA4000-EP	Innco Systems GmbH	Antenna Master	MA4000/508	N/A
■ - HLA 6121	TESEQ	Loop Antenna	50841	Apr. 27, 2024 (2Y)
■ - MA-4640-XPET	Innco Systems GmbH	Antenna Master	MA4640/592/40700517	N/A
■ - HF907	Rohde & Schwarz	DOUBLE-RIDGED HORN ANTENNA	100318	Oct. 28, 2024 (1Y)
■ - SAS-574	A.H. System	Horn Antenna	676	Oct. 19, 2024 (1Y)
■ - PAM-118A	Com-Power	Preamplifier	18040081	Oct. 16, 2024 (1Y)
■ - PAM-840A	Com-Power	Preamplifier	461339	Oct. 16, 2024 (1Y)
■ - WT-A3882-R10	Microwave	Cavity Band Rejection Filter	WT22040502-1	Jan. 16, 2024 (1Y)

All test equipment used is calibrated on a regular basis.

5.2.6 Test Data

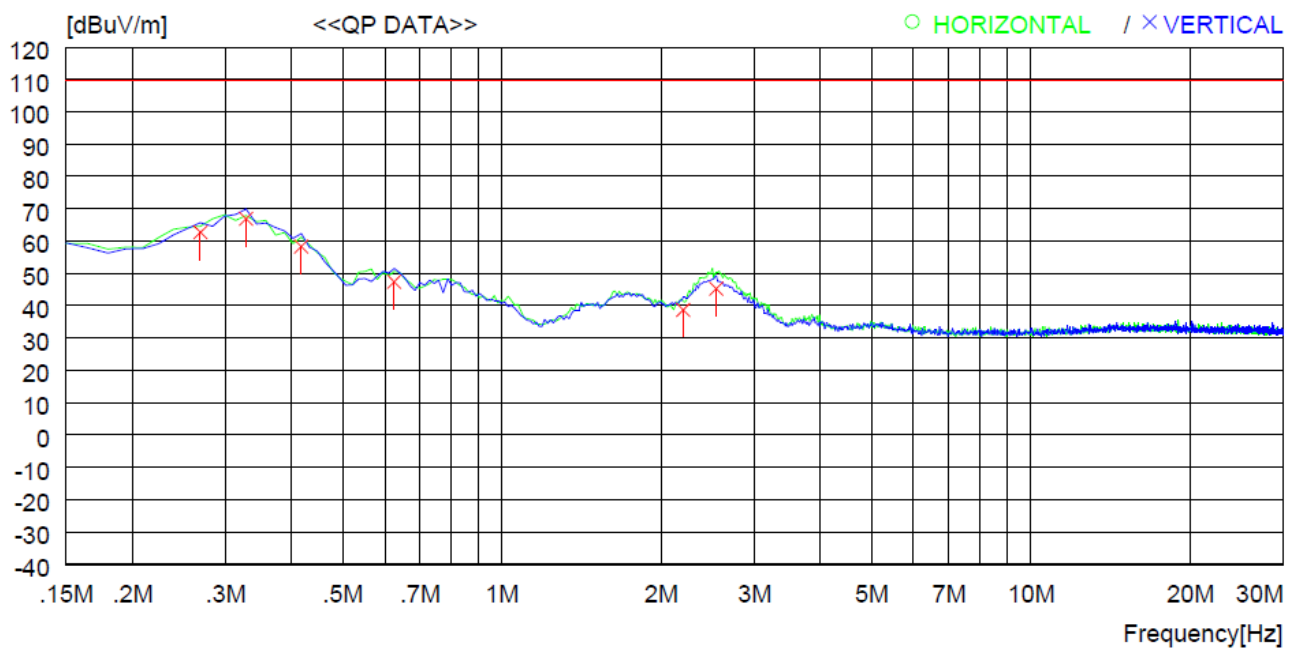
5.2.6.1 Operating Condition: AC 208 V / 60 Hz

-. Test Result : Pass



Tested by: Young-Jae, Kim / Project Engineer

Microwave mode			
Frequency range	: 150 kHz ~ 30 MHz	Test Date	: March 07, 2025
Resolution bandwidth	: 9 kHz	Measurement distance	: 3 m
Detector Mode	: Quasi Peak		



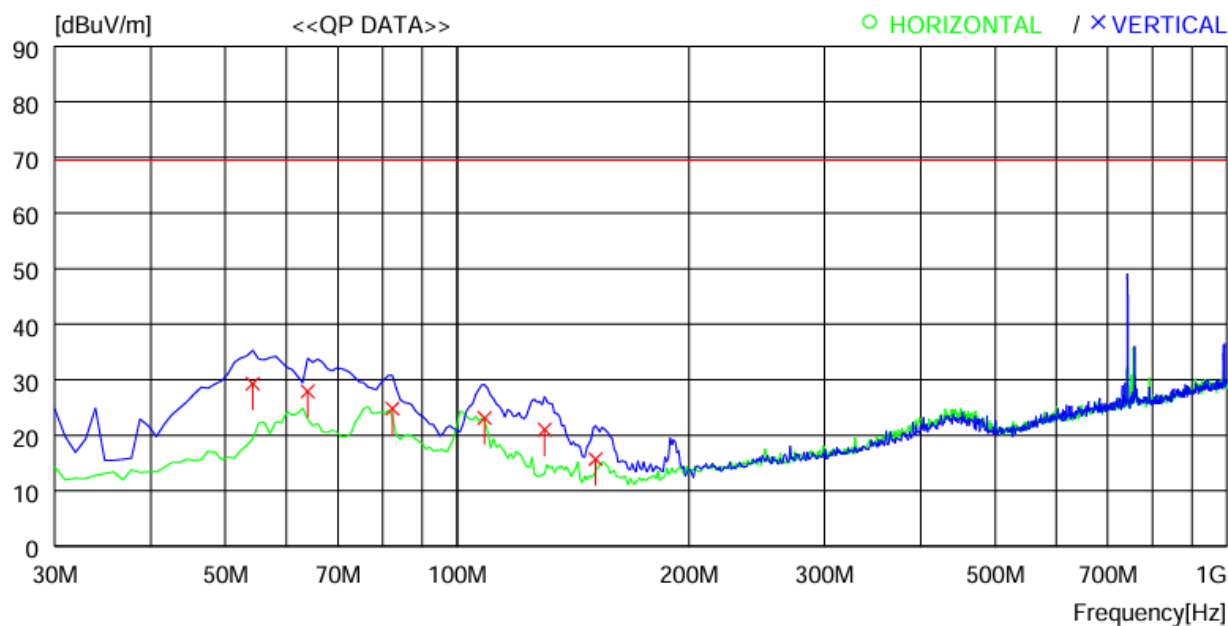
No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	QP	FACTOR	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Vertical -----										
1	0.269	42.6	19.9	0.2	0.0	62.7	109.5	46.8	100	0
2	0.328	46.7	19.9	0.3	0.0	66.9	109.5	42.6	100	0
3	0.417	38.0	20.0	0.3	0.0	58.3	109.5	51.2	100	0
4	0.625	27.0	20.0	0.4	0.0	47.4	109.5	62.1	100	0
5	2.199	18.2	19.9	0.6	0.0	38.7	109.5	70.8	100	0
6	2.541	24.9	19.8	0.6	0.0	45.3	109.5	64.2	100	0

Remark: Margin (dB) = Limit – Result

Result = Reading Quasi-Peak + Antenna Factor + Loss – Gain

Loss and Gain in above table means Cable Loss and Pre-amplifier gain.

Microwave mode			
Frequency range	: 30 MHz ~ 1 000 MHz	Test Date	: March 07, 2025
Resolution bandwidth	: 120 kHz	Measurement distance	: 3 m
Detector Mode	: Quasi-Peak		



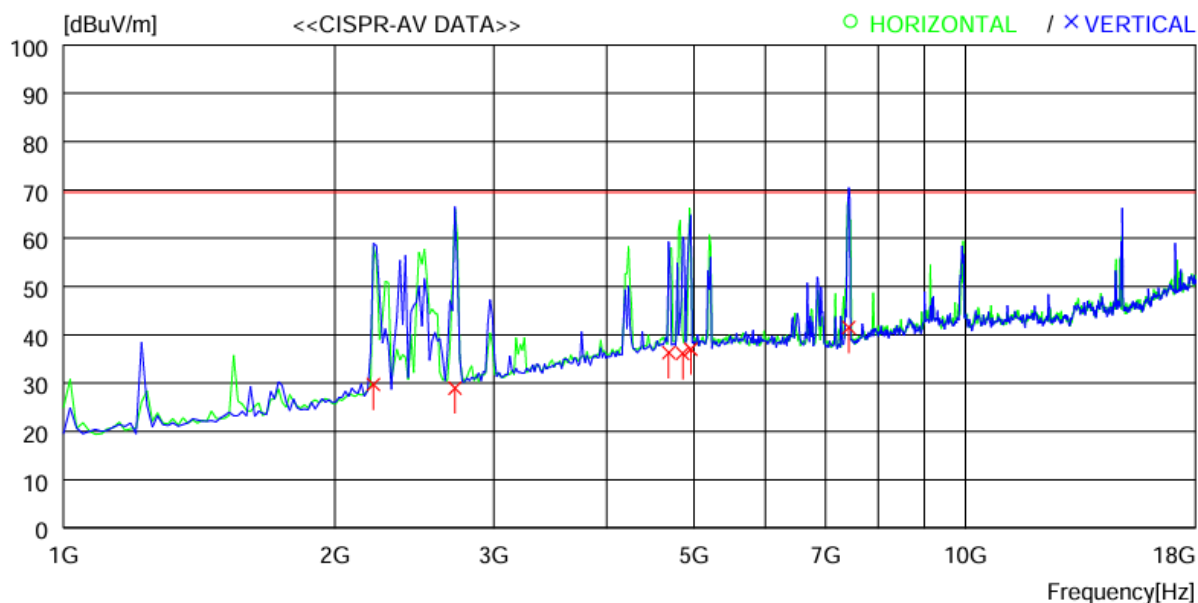
No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	QP	FACTOR							
		[dBuV]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Vertical -----										
1	54.250	41.4	13.5	2.6	28.2	29.3	69.5	40.2	100	0
2	63.950	41.6	11.8	2.7	28.2	27.9	69.5	41.6	100	92
3	82.380	42.1	7.9	2.9	28.1	24.8	69.5	44.7	200	359
4	108.570	35.6	11.8	3.7	28.0	23.1	69.5	46.4	100	1
5	129.910	36.6	8.4	3.9	27.9	21.0	69.5	48.5	100	6
6	151.250	31.0	8.0	4.5	27.8	15.7	69.5	53.8	100	232

Remark: Margin (dB) = Limit – Result

Result = Reading Quasi-Peak + Antenna Factor + Loss – Gain

Loss and Gain in above table means Cable Loss and Pre-amplifier gain.

Microwave mode			
Frequency range	: 1 GHz ~ 18 GHz	Test Date	: March 07, 2025
Resolution bandwidth	: 1 MHz	Measurement distance	: 3 m
Detector Mode	: CISPR-Average		



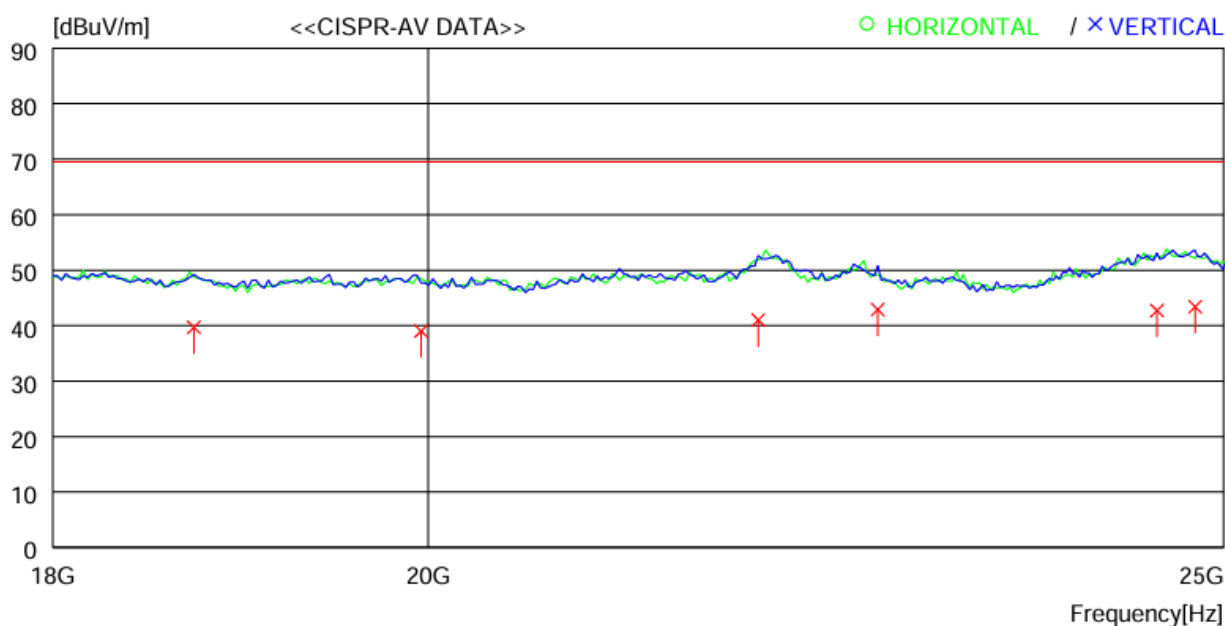
No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	CAV	FACTOR	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Vertical -----										
1	2207.110	41.7	28.7	2.2	42.9	29.7	69.5	39.8	100	131
2	2717.343	40.1	29.9	2.3	43.3	29.0	69.5	40.5	100	156
3	4689.291	42.3	34.2	3.1	43.3	36.3	69.5	33.2	100	156
4	4859.173	41.6	34.4	3.2	43.1	36.1	69.5	33.4	100	156
5	4961.335	42.4	34.5	3.2	43.1	37.0	69.5	32.5	100	156
6	7426.416	43.8	36.0	3.9	42.2	41.5	69.5	28.0	100	104

Remark: Margin (dB) = Limit – Result

Result = Reading CISPR-Average + Antenna Factor + Loss – Gain

Loss and Gain in above table means Cable Loss and Pre-amplifier gain.

Microwave mode			
Frequency range	: 18 GHz ~ 25 GHz	Test Date	: March 07, 2025
Resolution bandwidth	: 1 MHz	Measurement distance	: 3 m
Detector Mode	: CISPR-Average		



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	[dBuV]	FACTOR	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Vertical -----										
1	18726.420	29.5	40.3	10.2	40.3	39.7	69.5	29.8	100	129
2	19958.170	29.3	40.3	11.0	41.6	39.0	69.5	30.5	100	282
3	21938.480	31.2	40.3	11.6	42.1	41.0	69.5	28.5	100	282
4	22686.390	33.6	40.1	11.3	42.1	42.9	69.5	26.6	100	275
5	24534.410	32.8	40.2	11.9	42.2	42.7	69.5	26.8	100	138
6	24798.340	33.5	40.3	11.8	42.2	43.4	69.5	26.1	100	342

Remark: Margin (dB) = Limit – Result

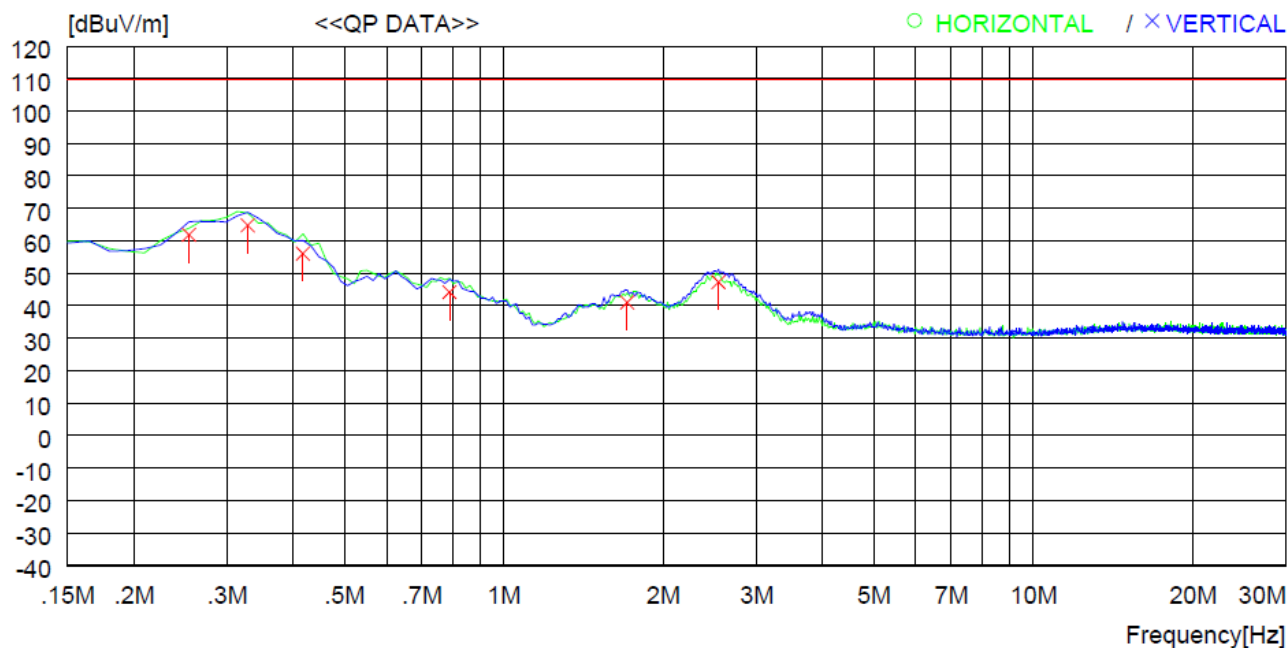
Result = Reading CISPR-Average + Antenna Factor + Loss – Gain

Loss and Gain in above table means Cable Loss and Pre-amplifier gain.

5.2.6.2 Operating Condition: AC 240 V / 60 Hz

-. Test Result : Pass

Microwave mode			
Frequency range	: 150 kHz ~ 30 MHz	Test Date	: March 07, 2025
Resolution bandwidth	: 9 kHz	Measurement distance	: 3 m
Detector Mode	: Quasi-Peak		



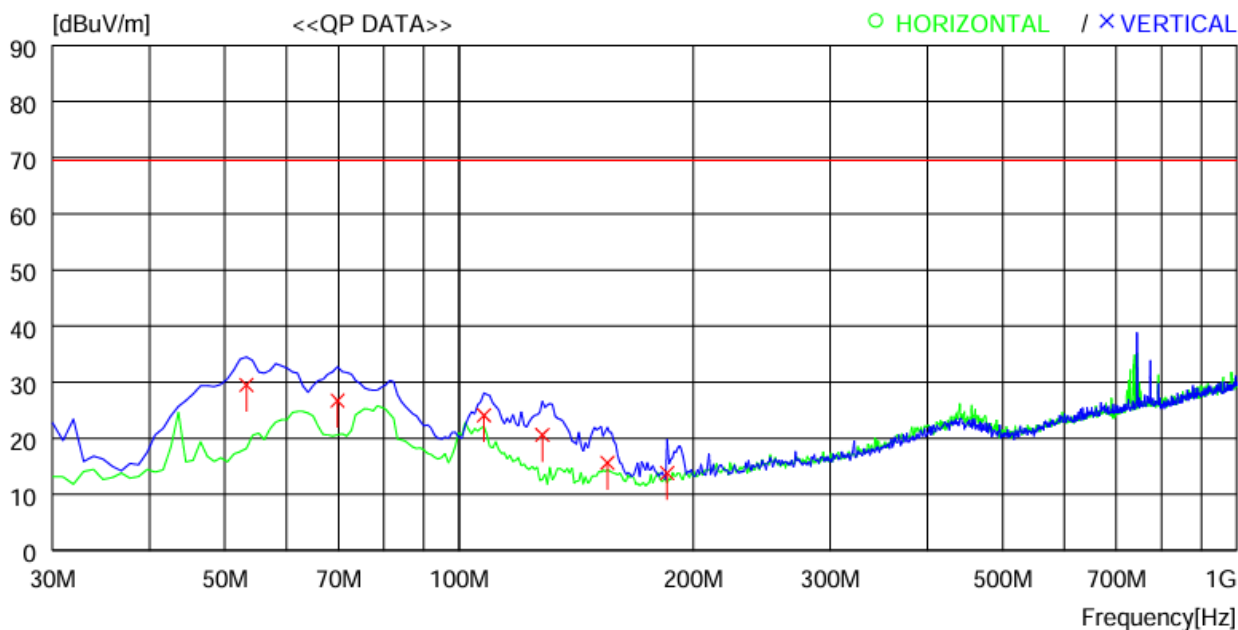
No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	[dBuV]	FACTOR	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Vertical -----										
1	0.254	41.8	19.9	0.2	0.0	61.9	109.5	47.6	100	0
2	0.328	44.6	19.9	0.3	0.0	64.8	109.5	44.7	100	0
3	0.417	35.8	20.0	0.3	0.0	56.1	109.5	53.4	100	0
4	0.789	23.7	20.0	0.5	0.0	44.2	109.5	65.3	100	0
5	1.709	20.5	19.9	0.6	0.0	41.0	109.5	68.5	100	0
6	2.541	26.9	19.8	0.6	0.0	47.3	109.5	62.2	100	0

Remark: Margin (dB) = Limit – Result

Result = Reading Quasi-Peak + Antenna Factor + Loss – Gain

Loss and Gain in above table means Cable Loss and Pre-amplifier gain.

Microwave mode			
Frequency range	: 30 MHz ~ 1 000 MHz	Test Date	: March 07, 2025
Resolution bandwidth	: 120 kHz	Measurement distance	: 3 m
Detector Mode	: Quasi-Peak		



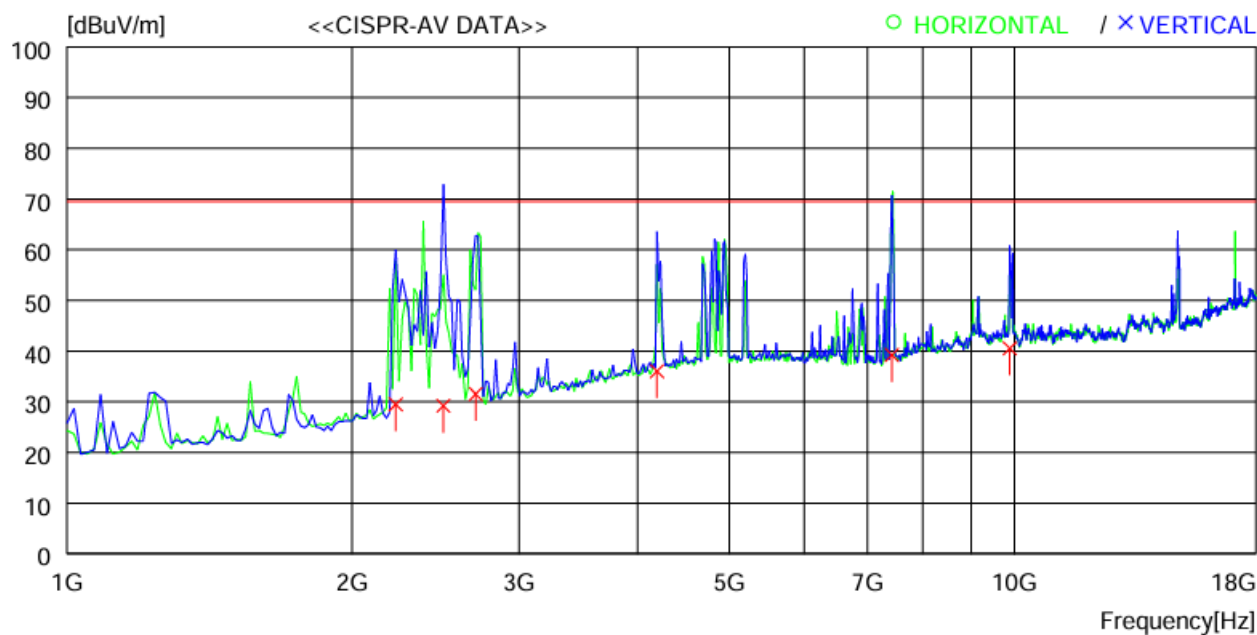
No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
		QP	FACTOR							
	[MHz]	[dBuV]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Vertical -----										
1	53.280	41.5	13.6	2.6	28.2	29.5	69.5	40.0	100	0
2	69.770	42.4	9.7	2.7	28.1	26.7	69.5	42.8	200	359
3	107.600	36.6	11.8	3.7	28.0	24.1	69.5	45.4	100	358
4	127.970	35.9	8.7	3.9	27.9	20.6	69.5	48.9	100	0
5	155.130	30.6	8.2	4.6	27.8	15.6	69.5	53.9	100	0
6	185.200	26.1	10.0	5.3	27.6	13.8	69.5	55.7	100	0

Remark: Margin (dB) = Limit – Result

Result = Reading Quasi-Peak + Antenna Factor + Loss – Gain

Loss and Gain in above table means Cable Loss and Pre-amplifier gain.

Microwave mode			
Frequency range	: 1 GHz ~ 18 GHz	Test Date	: March 07, 2025
Resolution bandwidth	: 1 MHz	Measurement distance	: 3 m
Detector Mode	: CISPR-Average		



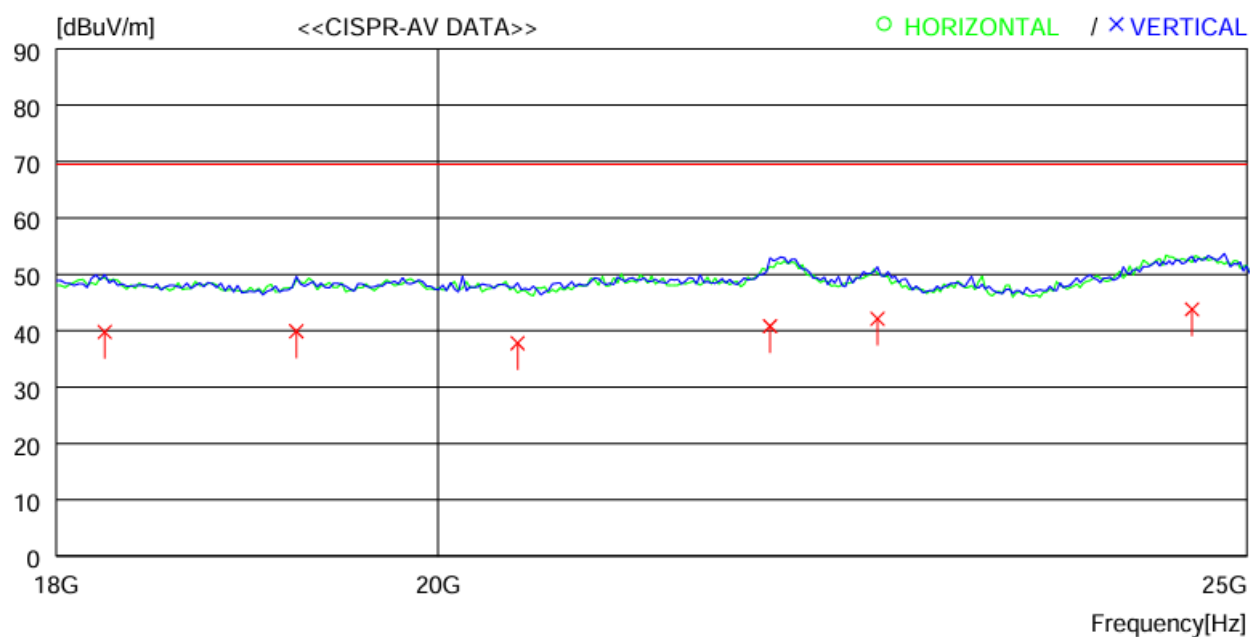
No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	[dBuV]	FACTOR	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Vertical -----										
1	2224.225	41.5	28.7	2.2	42.9	29.5	69.5	40.0	100	108
2	2496.132	40.8	29.3	2.2	43.1	29.2	69.5	40.3	100	277
3	2700.116	42.5	29.9	2.3	43.2	31.5	69.5	38.0	100	127
4	4196.214	43.2	33.5	2.9	43.6	36.0	69.5	33.5	100	135
5	7426.318	41.5	36.0	3.9	42.2	39.2	69.5	30.3	100	108
6	9891.224	40.8	37.4	4.7	42.4	40.5	69.5	29.0	100	120

Remark: Margin (dB) = Limit – Result

Result = Reading CISPR-Average + Antenna Factor + Loss – Gain

Loss and Gain in above table means Cable Loss and Pre-amplifier gain.

Microwave mode			
Frequency range	: 18 GHz ~ 25 GHz	Test Date	: March 07, 2025
Resolution bandwidth	: 1 MHz	Measurement distance	: 3 m
Detector Mode	: CISPR-Average		



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	CAV	FACTOR	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Vertical -----										
1	18242.330	28.8	40.3	10.3	39.6	39.8	69.5	29.7	100	188
2	19232.140	30.1	40.3	10.3	40.8	39.9	69.5	29.6	100	359
3	20442.340	28.3	40.2	10.8	41.5	37.8	69.5	31.7	100	240
4	21916.500	31.1	40.3	11.5	42.1	40.8	69.5	28.7	100	359
5	22576.250	32.8	40.1	11.3	42.1	42.1	69.5	27.4	100	272
6	24622.340	33.9	40.2	11.9	42.2	43.8	69.5	25.7	100	352

Remark: Margin (dB) = Limit – Result

Result = Reading CISPR-Average + Antenna Factor + Loss – Gain

Loss and Gain in above table means Cable Loss and Pre-amplifier gain.

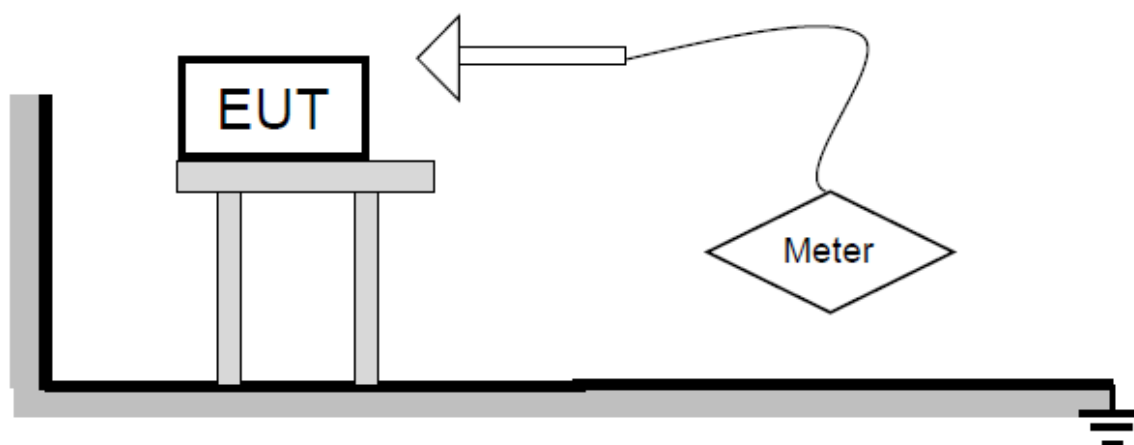
5.3 Radiation Hazard

5.3.1 Operating Environment

Temperature : 20.2 °C
Relative humidity : 40.2 % R.H.

5.3.2 Test Setup

The EUT was set-up according to the FCC MP-5 and FCC Part 18 for Radiation Hazard Measurement. The measurement was using a microwave leakage meter to measure the Radiation leakage in the as-received condition with the oven door closed. A 1000ml water load in a beaker was located in the center of the oven and the Multi-Microwave Oven was set to maximum power. While the oven operating, the microwave meter will check the leakage and then record the maximum leakage.



5.3.3 Limit

Maximum Emission, mW/cm ²
1.0

5.3.4 Test Equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal. (Interval)
■ -	HI-1501	ETS-LINDGREN	MICROWAVE SURVEY METER	117068	Jun. 11, 2024 (1Y)
■ -	SH-9500M	EZ DIGITAL	Digital Clamp Meter	A863019	Mar. 11, 2024 (1Y)

All test equipment used is calibrated on a regular basis.

5.3.5 Test Data

Conditon	Maximum Emission, mW/cm ²
A	0.15
B	0.12
C	0.18
D	0.11
E	0.14
F	0.16
G	0.13
M. UNCERTAINTY	0.0002

5.4 Operating Frequency

5.4.1 Operating Environment

Temperature : 20.2 °C
Relative humidity : 40.2 % R.H.

5.4.2 Test Setup

-. FREQUENCY FOR NORMAL VOLTAGE

The operating frequency was measured using a spectrum analyzer. Starting with the EUT at room temperature, a 1000mL water load was placed in the center of the oven and the oven was operated at maximum output power. The fundamental operating frequency was monitored until the water load was reduced to 20 percent of the original load.

-. FREQUENCY FOR LINE VOLTAGE

The EUT was operated / warmed by at least 10 minutes of use with a 1000 mL water load at room temperature at the beginning of the test. Then the operating frequency was monitored as the input voltage was varied between 80 and 125 percent of the nominal rating.

5.4.3 Limit

ISM frequency	Tolerance
6.78 MHz	±15.0 kHz
13.56 MHz	±7.0 kHz
27.12 MHz	±163.0 kHz
40.68 MHz	±20.0 kHz
915 MHz	±13.0 MHz
2,450 MHz	±50.0 MHz
5,800 MHz	±75.0 MHz
24,125 MHz	±125.0 MHz
61.25 GHz	±250.0 MHz
122.50 GHz	±500.0 MHz
245.00 GHz	±1.0 GHz

5.4.4 Test Equipment used

Model Number	Manufacturer	Description	Serial Number	Last Cal. (Interval)
■ - ESW 44	Rohde & Schwarz	EMI Test Receiver	101851	Mar. 05, 2025 (1Y)
■ - SH-9500M	EZ DIGITAL	Digital Clamp Meter	A863019	Mar. 11, 2024 (1Y)

All test equipment used is calibrated on a regular basis.

5.4.5 Test Data

Item	START Frequency (MHz)	STOP Frequency (MHz)	Detector
FREQUENCY FOR NORMAL VOLTAGE	2400.1	2500.0	Peak
FREQUENCY LINE NORMAL VOLTAGE	2402.4	2466.2	Peak

5.5 RF Output Power Measurement

5.5.1 Operating Environment

Temperature : 24.3 °C
Relative humidity : 52.4 % R.H.

5.5.2 Test Procedure

Formula :

$$P = \frac{4.2 \times m_w(T_2 - T_1) + 0.9 \times m_c(T_2 - T_0)}{t}$$

NOTE :

P is the microwave power output, in watts

m_w is the mass of the water, in grams

m_c is the mass of the container, in grams

T₀ is the ambient temperature, in degrees Celsius

T₁ is the initial temperature of the water, in degrees Celsius

T₂ is the final temperature of the water, in degrees Celsius

t is the heating time, in seconds, excluding the magnetron filament heating-up time.

5.5.3 Test Equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal. (Interval)
■ -	PW3360	HIOKI	CLAMP ON POWER LOGGER	130334353	Sep. 30, 2024 (1Y)
■ -	63	FLUKE	IR THERMOMETER	9652-0723	Apr. 11, 2024 (1Y)
■ -	SH-9500M	EZ DIGITAL	Digital Clamp Meter	A863019	Mar. 11, 2024 (1Y)

All test equipment used is calibrated on a regular basis.

5.5.4 Test Data

Mass of water (g)	Mass of the container (g)	Ambient temperature (°C)	Initial temperature (°C)	Final temperature (°C)	Heating time (s)	Power output (watts)	Power input (watts)	Limit (watts)
1000	875	22.3	15.1	35.2	120	800.3	1638	1650

* only microwave

6. SAMPLE CALCULATIONS

$$\text{dB}\mu\text{V} = 20 \text{ Log}_{10}(\mu\text{V})$$

$$\text{Margin} = \text{Limit} - \text{Result}$$

-. Example 1: 3.03200 MHz

Limit	= 46.0 dB μ V (CISPR-Average)
Reading	= 30.8 dB μ V
Correction Factor	= Cable Loss + Pulse Limiter
	= 11.8 dB
Total	= 42.6 dB μ V
Margin	= 46.0 dB μ V – 42.6 dB μ V
	= 3.4 dB

-. Example 2: 24622.340 MHz

Limit	= 69.5 dB μ V/m (CISPR-Average)
Reading	= 33.9 dB μ V
Correction Factor	= Antenna Factor (40.2 dB/m) + Cable Loss (11.9 dB) - Amp. Gain (42.2 dB)
	= 9.9 dB
Total	= 43.8 dB μ V/m
Margin	= 69.5 dB μ V/m – 43.8 dB μ V/m
	= 25.7 dB